

CTCGCTCCAAGTTGTGCAGCCGGGACCGCCTCGGGGTGTCCAGCCGGCTCGCGGAGGCCCTCTGGGGGCGGGCGGGGGCGGCTCGGGG 90
 CCCCCCCTGAGCAGAAAAACAGGAAGAACCAGGCTCGGTCCAGTGGCACCCAGCTCCCTACCTCCTGTCCAGCCGCTGGCTCTGGCA 180
 GGGCATTCACAGCTCCCCGACTGTGACCACTTGCTCAGTGTCCCTCTCACCTGCCTCAGTTTCCCTCTGGGGGCGGATCGCGGGGCGGAG 270
 M A G R

Sma I
 GCTCTCTGGTTTCTGGCGGGCATTTCACGGCTGTGATTCTGCTGAGGAACCTTCCCGGGTGAGCCCCGCTTCTCCGAGCCTGGCACC 360
 G S L Y S W R A F H G C D S A E E L P R V S P R F L R A W H

Sma I
 CCCCCTCCGCTCTCAGCCAGGATGCCAACGAGGGCTGGGCCCCGGGCACCCAGTGTATCACCAAATGGGAGCACACCCGCCCAAGCCAG 450
 P P P Y S A R M P T R R W A P G T Q C I T K C E H T R P K P

Stu I Kpn I
 GGGAGCTGGCCTTCCGCAAGGGGACGCTGGTCACCATCCTGGAGGCTGCGAGAACAAGAGCTGGTACCGCGTCAAGCACCACACCACTG 540
 G E L A F R K Q D V V T I L E A C E N K S W Y R V K H H T S

Pvu II
 GACAGGAGCGGCTGCTGGCAGCTGGGGCCCTCGGGAGCGGGAGGCCCTCTCCGAGACCCCAAGCTCAGCCTCATGCCGTGGTTCCACG 630
 G Q E G L L A A G A L R E R E A L S A D P K L S L M F W F H

Pvu II Pst I
 GGAAGATCTCGGGCCAGGAGGCTGTCCAGCAGCTGCAGCCTCCGAGGATGGGCTGTTCTGCTGGGGAGTCCGGCGGCCACCCCGGG 720
 G K I S G Q E A V Q Q L Q P P E D G L F L V R E S A R H P G

Clal
 ACTACGTCCTGTGCGTCAGCTTTGCCCGGACGTCATCCACTACCGCGTGTGCACCGCGACGGCCACCTCACAATCGATGAGGCGCTGT 810
 D Y V L C V S F G R D V I H Y R V L H R D G H L T I D E A V

TCTTCTGCAACCTCATGGACATGGTGGAGCATTACAGCAAGGACAAGGGCGCTATCTGCACCAAGCTGGTGAGACCAAABCGGAAACAG 900
 F F C N L M D H V E H Y S K D K G A I C T K L V R F K R K H

Pst I
 GCACCAAGTCGGCCGAGCAGGAGCTGCGCCAGGGCGGGCTGGTACTGAACCTGCAGCATTGACATTGGGAGCACAGATCGGAGAGGGAG 990
 G T K S A E E E L A R A G W L L N L Q H L T L G A Q I G E G

Pst I Stu I
 AGTTTGGAGCTGTCTGCAGCGTGAGTACCTGGGGGCAAAAGGTGGCCGTGAAGAATATCAAGTGTGATGTGACAGCCGAGGCTTCTCG 1080
 E F G A V L Q G E Y L Q Q K V A V K N I K C D V T A Q A F L

ACGAGACGGCGCTCATGACGAAGATGCAACACGAGAACCTGGTGGCTCTCCTGGGCGTGATCCTGCACCGAGGCGCTGTACATTGTCTATG 1170
 D E T A V M T K M Q H E N L V R L L G V I L H Q G L Y I V M

Sma I Pst I
 AGCACGTGAGCAAGGGCAACCTGCTGAACCTTCTCGGACCCGGGGTGGAGCCCTCGTGAACACCGCTCAGCTCCTGCACTTTCTCTGC 1260
 E H V S K G N L V N F L R T R G R A L V N T A Q L L Q F S L

SH3

SH2

Tk

FIGURE 1A

Hind III

ACGTGGCCGACGGCATGGAGTACCTGGAGAGCAAGAAGCTTGTGCACCGCGACCTGGCCGCGCGCAACATCCTGGTCTCAGAGGACCTGG 1350
H V A E G M E Y L E S K K L V H R D L A A R N I L V S E D L

TGCCCAAGGTCACCGACTTTGGCCTGGCCAAAGCCGAGCGGAAGGGGCTAGACTCAAGCCGGCTGCCCGTCAAGTGGACGGCGCCCGAGG 1440
V A K Y S D F G L A K A E R K G L D S S R L P V K W T A P E

Nde I

CTCTCAAAACACGGGAAGTTCACCAGCAAGTCGGATGTCTGGAGTTTTGGGGTGCTGCTCTGGGAGGTCTTCTCATATGGACGGGCTCCGT 1530
A L K H G K F T S K S D V W S F G V L L W E V F S Y G R A P

Kpn I

ACCCTAAAATGTCACCTCAAAGAGGTGTGGAGGCGGTGGAGAAGGGCTACCGCATGGAACCCCGAGGGCTGTCCAGGCCCGTGCACG 1620
Y P K H S L K E V S E A V E K G Y R M E P P E G C F G P V H

Pvu II

Sma I

TCCTCATGAGCAGCTGCTGGGAGGCAGAGCCCGCCCGCCGCCACCCTTCCGCAAACTGGCCGAGAAGCTGGCCCGGAGCTACGCAGTG 1710
Y L H S S C W E A E P A R R P P F R K L A E K L A R E L R S

CAGGTGCCCCAGCCTCCGTCTCAGGGCAGGACGCCGAGGCTCCACCTCGCCCCGAAGCCAGGAGCCCTGACCCCATCCCGTGGGGCCCT 1800
A G A P A S V S G Q D A D G S T S P R S Q E P

TGCCCCAGAGGACCGAGAGAGTGGAGAGTGGGCGTGGGGGCACTGACCAGGCCCAAGGAGGGTCCAGGCGGGCAAGTCATCCTCCTGG 1890
TGCCACAGCAGGGGCTGGCCACGTAGGGGCTGTGGCGGCCCCGTGGACACCCAGACCTCCGAAGGATGATCGCCCGATAAAGACGG 1980
ATTCTAAGGACTCTAAAAAA 2000

FIGURE 1B

CCGCTTTTGTCTTAGAGCTTGAGAGTCAAAGTTA. GACCCACATGTATACCTCGGCTCTAGCGAGTCTA JATGATAATATGGATACA 90
H D T

AAATCTATTCTAGAAGAACTTCTTCTCAAAGATCACAGCAAAAGAAGAAAATGTCACCAAATAATTACAAAGAACGGCTTTTGTGTTT 180
K S I L E E L L L K R S O O K K K M S P N N Y K E R L F V L

ACCAAAACAAACCTTTCTACTATGAATATGACAAAATGAAAAGGGGCAGCAGAAAAGGATCCATTGAAATTAAGAAAATCAGATGTGTG 270
T K T N L S Y Y E Y D K M K R G S R K G S I E I K K I R C V

CAGAAAGTAAATCTCGAGGAGCAGACGCTGTAGAGAGACAGTACCCATTTAGATTGTCTATAAAGATGGGCTTCTCTATGTCTATGCA 360 PH
E K V N L E E Q T P V E R Q Y P F Q I V Y K D G L L Y V Y A

TCAAATGAAGAGAGCCGAAGTCAGTGGTTGAAAGCATTACAAAAGAGATAAGGGGTAACCCCCACCTGCTGGTCAAGTACCATAGTGGG 450
S N E E S R S O W L K A L Q K E I R G N P H L L V K Y H S G

TTCTTCGTGGACGGGAAGTTCCTGTGTTGCCAGCAGAGCTGTAAAGCAGCCCCAGGATGTACCCTCTGGGAAGCATATGCTAATCTGCAT 540
F F V D G K F L C C O O S C K A A P G C T L W E A Y A N L H

ACTGCAGTCAATGAAGAGAAACACAGAGTTCCACCTTCCAGACAGAGTGTGAAGATACCTCGGGCAGTTCCTGTTCTCAAATGGAT 630
T A V N E E K H R V P T F P D R V L K I P R A V P V L K M D

GCACCATCTTCAAGTACCCTCTAGCCCAATATGACAACGAATCAAAGAAAACTATGGCTCCAGCCACCATCTTCAAGTACCAGTCTA 720
A P S S S T T L A Q Y D N E S K K N Y G S Q P P S S S T S L SH3

GCGCAATATGACAGCAACTCAAAGAAAATCTATGGCTCCAGCCAACTTCAACATGCAGTATATTCCAAGGGAAGACTTCCCTGACTGG 810
A Q Y D S N S K K I Y G S Q P N F N M Q Y I P R E D F P D W

TGGCAAGTAAGAAAAGTGAAGAGTACAGCAGCAGTGAAGATGTTGCAAGCAGTAACCAAAAAGAAAGAAATGTGAATCACACCACCTCA 900
W Q V R K L K S S S S S E D V A S S N O K E R N V N H T T S

AAGATTTTCATGGGAATTCCTGAGTCAAGTTCATCTGAAGAAGAGGAAAACCTGGATGATTATGACTGGTTTGCTGGTAACATCTCCAGA 990
K I S W E F P E S S S S E E E E N L D D Y D W F A G N I S R

TCACAATCTGAACAGTTACTCAGACAAAAGGGAAAAGAAGGAGCATTATGGTTAGAAATTCGAGCCAAGTGGGAATGTACACAGTGTCC 1080 SHx
S Q S E Q L L R Q K G K E G A F M V R N S S Q V G H Y T V S

TTATTTAGTAAGGCTGTGAATGATAAAAAAGGAAGTGTCAAACATTACCACGTGCATACAAATGCTGAGAACAAATTATACCTGGCAGAA 1170
L F S K A V N D K K G T V K H Y H V H T N A E N K L Y L A E

AACTACTGTTTGTATTCCATTCCAAAGCTTATTCTATTATCATCAACACAATTCAGCAGGCATGATCACACGGCTCCGCCACCCTGTGTCA 1260
N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S

ACAAAGGCCAACAAGGTCCCGACTCTGTGTCCCTGGGAAATGGAATCTGGGAACTGAAAAGAGAAGAGATTACCTTGTGAAGGAGCTG 1350
T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L

GGAAGTGGCCAGTTTGGAGTGGTCCAGCTGGGCAAGTGAAGGGGCAGTATGATGTTGCTGTTAAGATGATCAAGGAGGGCTCCATGTCA 1440
G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S H S

GAAGATGAATTTCTTTCAGGAGGCCAGACTATGATGAAACTCAGCCATCCCAAGCTGGTTAAATTCTATGGAGTGTGTTCAAAGGAATAC 1530
E D E F F Q E A Q T M H K L S H P K L V K F Y G V C S K E Y

CCCATATACATAGTACTGAATATATAAGCAATGGCTGCTTGTGCTGAATTACCTGAGGAGTCACGGAAAAGGACTTGAACCTTCCAGCTC 1620 Tk
P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L

TTAGAAATGTGCTACGATGTCTGTGAAGGCATGGCCTTCTTGGAGAGTCACCAATTCATACACCGGACTTGGCTGCTCGTAAGTCTGTTG 1710
L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L

GTGGACAGAGATCTCTGTGTGAAAGTATCTGACTTTGGAATGACAAGGTATGTTCTTGATGACCAGTATGTCAAGTTCAGTTCGGAACAAAG 1800
V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K

FIGURE 2A

CCGGACTGGTCGAAAGACAGGAACAGACTTGAACAGCGCGGACAGCTCCTGGCGAAACGAAGACGTGGAGSTTTTACCAGGCATAAGAAG 90
 AAAAGACACCTTCTAGTCAGCAGCTGCCACAGCTCCTGCTCAGTTTTGCGCTCGGGGTAGCACCTCCAGCCACAGAAAGCAAGCCGGTAAG 180
 TCTCTCCAGGTAGGACTTGCTGCAACCCAGCTGCTGGACTCATCTGAAACGGGACTTTGCATACTCTCCGAAGTATGGTGAGTTGGTGCT 270
 H V S W C
 GACTTCAAAGTTGCCTGGTGAAGGAAGATAAGGTGGATCGCAGAGACTAAGGGGAGAGGGAGAAGCCCTGCTCCTCTTCTCCCCACCAAG 360
 →
 GCACAATCAGCAACATCTGTGAGAGGCTCTGGGAGTACCTAGAACCTATCTCCCTGTTTTGTCCACGGAGGCAGACAAGTCAACCGTGA 450
 H S N I C O R L W E Y L E P Y L P C L S T E A D K S T V
 TTGAAATCCAGGGGCECTTTCTCTCCCCAGTCACAGAGGCATGGCCACTACTTTGTGGCTTTGTTTGATTACCAGGCTCGGACTGCTG 540
 I E N P G A L C S P O S Q R H G H Y F V A L F D Y Q A R T A
 AGGACTTGAGCTTCCGAGCAGGTGACAACTTCAAGTTCTGGACACTTTGCATGAGGGCTGGTGCTTTGCCAGACACTTGGAGAAAAGAC 630
 E D L S F R A G D K L Q V L D T L H E G W W F A R H L E K R
 CAGATGGCTCCAGTCAGCAACTACAAGGCTATATTCTTCTAACTACGTGGCTGAGGACAGAAGCCTACAGGCAGAGCCGTGGTTCTTTG 720
 R D G S S Q Q L Q G Y I P S N Y V A E D R S L Q A E P W F F
 CAGCAATCGGAAGATCAGATCCAGAGAAACAACTATTATATTACAGAAAACAGACCGGTTCCCTTTCTAATCAGAGAAAGTGAAGCCAAA 810
 G A I C R S D A E K O L L Y S E N K T G S F L I R E S E S O
 AAGGAGAATTCTCTCTTTTCAATTTAGATGGAGCAGTTGTAAACACTACAGAAATTAAGAGCTGGATCAAGGGGGATTTTTTCTCACGC 900
 K G E F S L S V L D G A V V K H Y R I K R L D E G G F F L Y
 GAAGAAGAATCTTTTCAACACTGAACGAATTTGTGAGCCACTACACCAAGACAAGTGACGGCCTGTGTGTCAAGCTGGGGAACCATGCT 990
 R R R I F S T L N E F Y S H Y T K T S D G L C V K L G K P C
 TAAAGATCCAGGTCCAGCTCCATTTGATTGTGCTATAAAACCGTGGACCAATGGGAGATAGACCGCAACTCCATACAGCTTCTGAAGC 1080
 L K I Q V P A P F D L S Y K T V D Q W E I D R N S I Q L L K
 CATTGGCATCTGGTCAGTTTGGCCAAGTATGGGAAGGTCTGTGGAAACAATACCACTCCAGTAGCAGTGAAAAACATTAAGAACAGGTTCAA 1170
 R L G S G Q F G E V W E G L W N N T T P V A V K T L K F G S
 TGGATCCAAATGACTTCCTGAGGGAGGCACAGATAATGAAGAACCTAAGACATCCAAAGCTTATCCAGCTTTATGCTGTTTGCACTTTAG 1260
 H D P N D F L R E A O I M K N L R H P K L I Q L Y A V C T L
 AAGATCCAATTTATATTATTACAGAGTTTCATGAGACATGGAAAGTCTCAACAATATCTCCAAATGACACTGGATCAAAAATCCATCTGA 1350
 E D P I Y I I T E L M R H G S L Q E Y L Q N O T G S K I H L
 CTCAACAGGTAGACATGGCGGCACAGGTTGCCTCTGGAATGGCCTATCTGGAATCTCGGAACCTACATTACAGAGATCTGGCTGCCAGAA 1440
 T Q Q Y D H A A Q V A S G M A Y L E S R N Y I H R D L A A R
 ATGTCCTCGTTGGTGAACATAATATCTACAAAGTAGCAGATTTTGGACTTCCACAGATTTTTAAGGTAGATAATGAAGACATCTATGAAT 1530
 N Y L V G E H N I Y K V A D F G L A R V F K V D N E D I Y E
 CTAGACACGAAATAAAGCTGCCGGTGAAGTGGACTGCCCGGAAGCCATTCTAGTAATAAATTGAGCATTAAAGTCCGATGTATGGTCAT 1620
 S R H E I K L P Y K W T A P E A I R S N K F S I K S D V W S
 TTGGAATCCTTCTTTATGAAATCATTACTTATGGCAAAATGCCTTACAGTGGTATGACAGGTGCCAGGTAATCCAGATGTTGGCTCAA 1710
 F G I L L Y E I I T Y G K M P Y S G M T G A Q V I Q M L A Q
 ACTATAGACTTCCGCAACCATCCAAGTGTCCACAGCAATTTTACAACATCATGTTGGAGTGGTGAATGCAGAGCCTAAGGAACGACCTA 1800
 N Y R L P Q P S N C P Q Q F Y N I M L E C W N A E P K E R P

SH3

SH2

TK

FIGURE 3A

CATTGAGACACTGCGTTGGAACTTGAAGACTATTTTGAACAGACTCTTCATATTCAGATGCAAATAACTTCATAAGATGAACACTGG 1890
 Y F E T L R W K L E D Y F E T D S S Y S D A N N F I R .
 ACAAGAATATCAAATAATAAAGTAGCAAAACAAATTCAAATAATCCATTCCAAAATACAATGTTATCAACCAACTGCACAATCAGTTTAT 1880
 CCTCACATATTCAGTGATAGGATAAAGTTGGCCATGTATTATGAAAAAGATTATTTGTGCATTTTATTGACTGGGCAACACTGCAGGAC 2070
 AGTCAAGGTCATATATAATTGCTCACTGCCTGGAAAATTAAGCACACTAAACCAAGTTATTTTCTTTTAAAGAGATACTTACATTTCCA 2180
 TTTATTGTTTGAATGTGCGGATCAAGAGAATCAACAGATGATAGTCCAATTTTACTCAGTCATGACTGTGTAGCATTCTCTCTTTAC 2250
 TGATTAGAGTGGTTATTTCATTATTCCTCAGATTGCTGAATCCCATCAGGCTGTTATTATGAAGGAATTTGATTGCTTTGCTGCACAGCAG 2340
 GACCTCTCCTTTGAGATTTTTTTTCTCTTTTAAATATCCTGTAACACAAATCATGGTAAAGCCATGTTAAATGACTTCATTGTACTTG 2430
 GACTAATTGCACATTTTTTTCTATGCATAAAAAAATGATGCAGCTGTTGAGAAAACGAAGTCTTTTTCATTTTGCAGAAGGAAATGATGG 2520
 AATTTTTCTGTACTTCAGTATGTGTCAACTGAGAGTCATATACATTAGTTTTAATCTCTTAATATTGAGAATCAGGTTGCAAAACGGATG 2610
 AGTTATTATCTATGCAAAATGTGAGAAATGTCTAATAGCCCATAAAGTCTGAGAAATAGGTATCAAAATAGTTTAGGAAAATGAGACGAGA 2700
 ACAGTAGGATTGCTGTGGCCTAGACTTCTGAGTAATTAATAAAGAAAAAGAAGTACCAAAAAAAAAAAAAA 2770

FIGURE 3B

0007250 0404

Expression of MKK1 and MKK2

| | | <u>MKK1</u> | <u>MKK2</u> |
|---------------|--------|-------------|-------------|
| Human | | | |
| Meg/Eryth | Meg-01 | +++ | +++ |
| | K562 | ++ | + |
| | Mo7e | ++ | + |
| | HEL | +++ | ++ |
| Myelo/Mac | KG-1 | + | ++ |
| | HL-60 | + | + |
| | TF-1 | + | + |
| B-cell | ALL-1 | - | + |
| | Raji | - | - |
| | Daudi | - | - |
| T-cell | Molt-3 | - | - |
| | Jurkat | - | - |
| Epithelial | Hela | - | - |
| Rodent | | | |
| | BM | + | +++ |
| | Spleen | +++ | + |
| | Thymus | - | - |
| | Liver | - | - |
| | Brain | + | - |
| rat neural | P19 | + | - |

FIGURE 4

**Immunoprecipitation Of In Vitro Transcribed
Translated MKK1 And MKK2 Proteins**

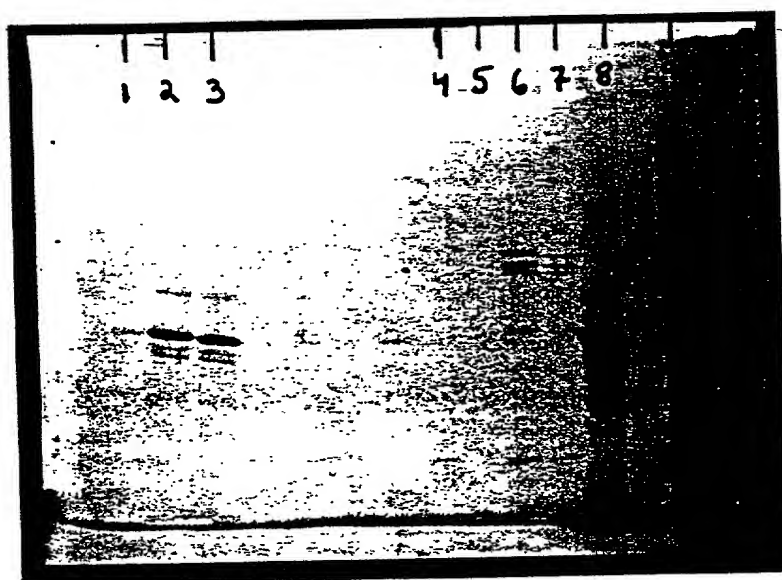


FIGURE 5

Antisense MKK1 Expression Suppresses AChE Production In Primary Murine Bone Marrow Cultures

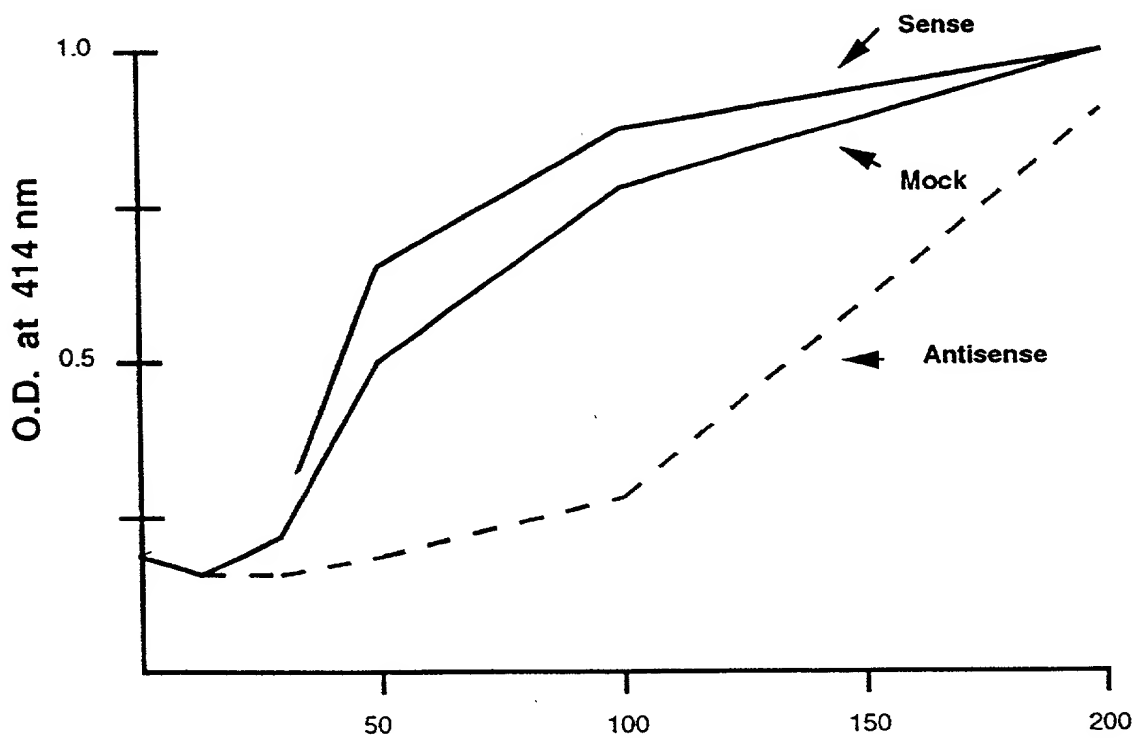


FIGURE 6A

Cell Number x 10³/200 ul

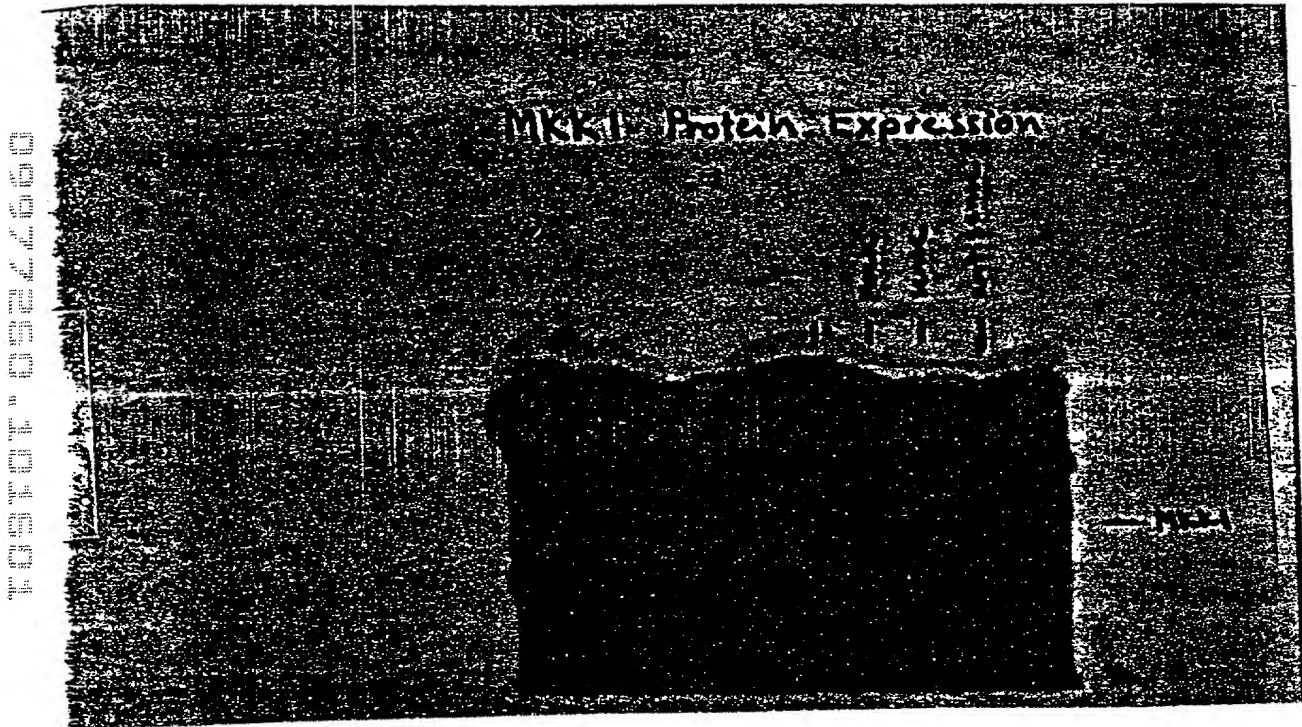


FIGURE 6B

MKK2 AND MKK3 AUTOPHOSPHORYLATE
TRANSPHOSPHORYLATE PROTEINS WHEN EXPRESSED IN BACTERIA

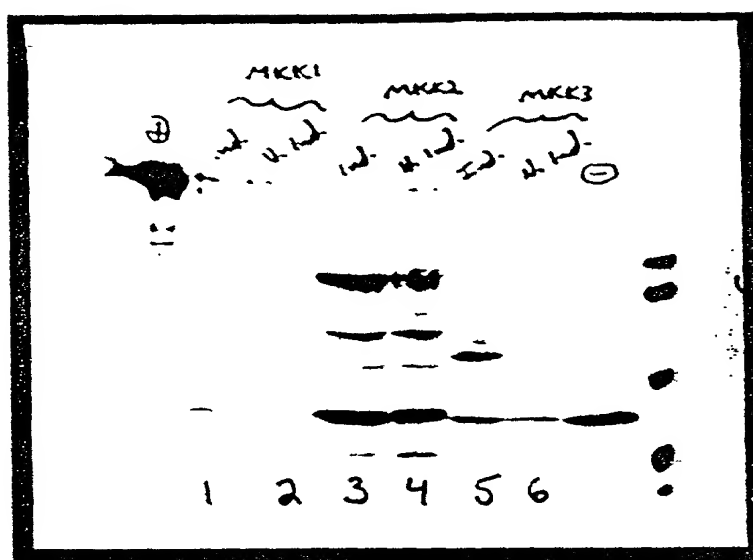


FIGURE 7

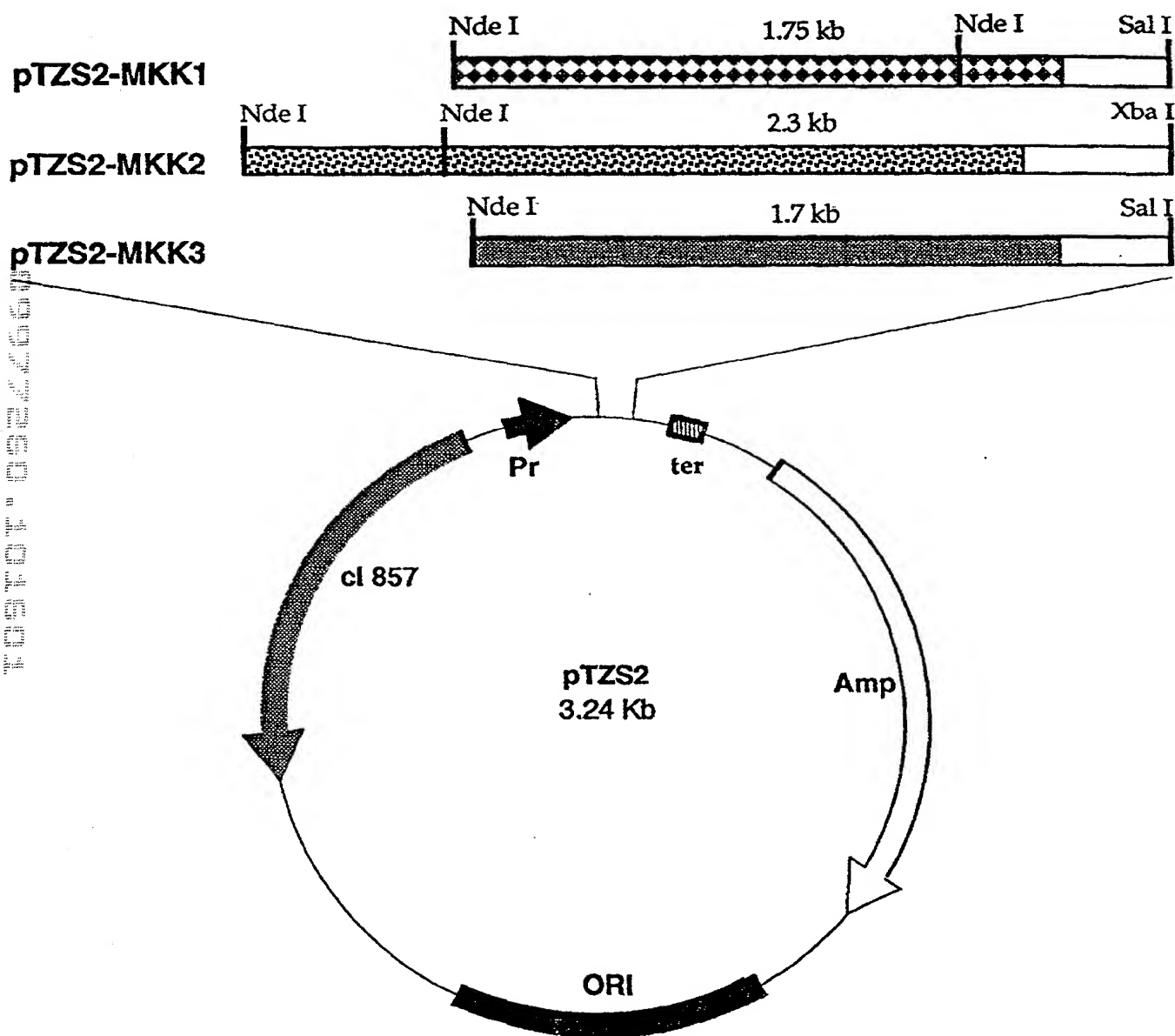


FIGURE 8

1 M A G R G S L V S W R A F H G C D S A E E L P R V S P R F L MKK1 aa
1 M S A I Q A A - - - - - hCSK (JH0559)

31 R A W H P P P V S A R M P T R R W A P G T Q C I T K C E H T MKK1 aa
8 - - - - - W P S G T E C I A K Y N F H hCSK (JH0559)

61 R P K P G E L A F R K G D V V T I L E A C E N K S W Y R V K MKK1 aa
22 G T A E Q D L P F C K G D V L T I V A V T K D P N W Y K A K hCSK (JH0559)

91 H H T S G O E G L L A A G A L R E R E A L S A D P K L S L M MKK1 aa
52 N K V - G R E G I I P A N Y V Q K R E G V K A G T K L S L M hCSK (JH0559)

121 P W F H G K I S G O E A V O O L O P P E D G L F L V R E S A MKK1 aa
81 P W F H G K I T R E Q A E R L L Y P P E T G L F L V R E S T hCSK (JH0559)

151 R H P G D Y V L C V S F G R D V I H Y R V L H R D G H L T I MKK1 aa
111 N Y P G D Y T L C V S C D G K V E H Y R I M Y H A S K L S I hCSK (JH0559)

181 D E A V F F C N L M D M V E H Y S K D K G A I C T K L V R P MKK1 aa
141 D E E V Y F E N L M Q L V E H Y T S D A D G L C T R L I K P hCSK (JH0559)

211 K R K H G T K S A E E E L A R A G W L L N L O H L T L G A O MKK1 aa
171 K V M E G T V A A Q D E F Y R S G W A L N M K E L K L L Q T hCSK (JH0559)

241 I G E G E F G A V L O G E Y L G O K V A V K N I K C D V T A MKK1 aa
201 I G K G E F G D V M L G D Y R G N K V A V K C I K N D A T A hCSK (JH0559)

271 Q A F L D E T A V M T K M O H E N L V R L L G V I L H O - - MKK1 aa
231 Q A F L A E A S V M T Q L R H S N L V Q L L G V I V E E K G hCSK (JH0559)

299 G L Y I V M E H V S K G N L V N F L R T R G R A L V N T A O MKK1 aa
261 G L Y I V T E Y M A K G S L V D Y L R S R G R S V L G G D C hCSK (JH0559)

329 L L O F S L H V A E G M E Y L E S K K L V H R D L A A R N I MKK1 aa
291 L L K F S L D V C E A M E Y L E G N N F V H R D L A A R N V hCSK (JH0559)

359 L V S E D L V A K V S D F G L A K A E R K G L D S S R L P V MKK1 aa
321 L V S E D N V A K V S D F G L T K E A S S T Q D T G K L P V hCSK (JH0559)

389 K W T A P E A L K H G K F T S K S D V W S F G V L L W E V F MKK1 aa
351 K W T A P E A L R E K K F S T K S D V W S F G I L L W E I Y hCSK (JH0559)

419 S Y G R A P Y P K M S L K E V S E A V E K G Y R M E P P E G MKK1 aa
381 S F G R V P Y P R I P L K D V V P R V E K G Y K M D A P D G hCSK (JH0559)

449 C P G P V H V L M S S C W E A E P A R R P P F R K L A E K L MKK1 aa
411 C P P A V Y E V M K N C W H L D A A M R P S F L Q L R E Q L hCSK (JH0559)

479 A R E L R S A G A P A S V S G O D A D G S T S P R S O E P MKK1 aa
441 E H - - - - - I K T H E L H - - - - - L hCSK (JH0559)

FIGURE 9

1 M D T K S I L E E L L L K R S Q Q K K K M S P N N Y K E R L MKK2 aa
1 M A A - V I L E S I F L K R S Q Q K K K T S P L N F K K R L hAtk (X58957)
1 M N N F I L L E E Q L I K K S O O K R R T S P S N F K V R F hTKT (L10717)
1 M M V - - - - - mTec (X5663)

31 F V L T K T N L S Y Y E - - Y D K M K R G S R K G S I E I K MKK2 aa
30 F L L T V H K L S Y Y E Y D F E R G R R G S K K G S I D V E hAtk (X58957)
31 F V L T K A S L A Y F E D R - - H G K K R T L K G S I E L S hTKT (L10717)
4 - - - - - mTec (X5663)

59 K I R C V E K V N L E E Q T P V E R Q - - - - - MKK2 aa
60 K I T C V E T V V P E K N P P P E R O I P R R G E E S S E M hAtk (X58957)
59 R I K C V E I V K S D - - - - - hTKT (L10717)
4 - - - - - mTec (X5663)

78 - - - - - Y P F Q I V Y K D G L L Y V Y A S N E E MKK2 aa
90 E Q I S I I E R F P Y P F Q V V Y D E G P L Y V F S P T E E hAtk (X58957)
70 - - I S I P C H Y K Y P F Q V V H D N Y L L Y V F A P D R E hTKT (L10717)
4 - - - - - S F P V K I N F H S S P - - - - - Q mTec (X5663)

98 S R S Q W L K A L Q K E I R G N P H L L V K Y H S G F F V D MKK2 aa
120 L R K R W I H Q L K N V I R Y N S D L V Q K Y H P C F W I D hAtk (X58957)
98 S R Q R W V L A L K E E T R N N N S L V P K Y H P N F W M D hTKT (L10717)
17 S R D R W V K K L K E E I K N N N N I M I K Y H P K F W A D mTec (X5663)

128 G K F L C C Q Q S C K A A P G C T L W E A Y A N L H T A V N MKK2 aa
150 G Q Y L C C S Q T A K N A M G C Q I L E N R N G S L K P G S hAtk (X58957)
128 G K W R C C S Q L E K L A T G C A Q Y D - - - - - P hTKT (L10717)
47 G S Y Q C C R Q T E K L A P G C E K Y N L F E S S I - - - - - mTec (X5663)

158 E E K H R V P T F P D R V L K I P R A V P V L K M D A P S S MKK2 aa
180 S H R K T K K P L P P - - - - T P E E D Q I L K K P L P P E hAtk (X58957)
149 T K N A S K K P L P P - - - - T P E D N R - - - - - hTKT (L10717)
73 - - - - - R K T L P P - - - - A P E - - - - I K K R R P P - mTec (X5663)

188 S T T L A Q Y D N E S K K N Y G S Q P P S S S T S L A Q Y D MKK2 aa
206 P A A A P V S T S E L K K - - - - - V V A L Y D hAtk (X58957)
166 - - - R P L W E P E E T V - - - - - V I A L Y D hTKT (L10717)
89 P P I P P E E E N T E E I - - - - - V V A M Y D mTec (X5663)

218 S N S K K I Y G S Q P N F N M Q Y I P R E D F P - D W W Q V MKK2 aa
225 Y M P M N A N D L O L R K G D E Y F I L E E S N L P W W R A hAtk (X58957)
182 Y Q T N D P Q E L A L R R N E E Y C L L D S S E I H W W R V hTKT (L10717)
108 F Q A T E A H D L R L E R G Q E Y I L L E K N D L H W W R A mTec (X5663)

247 R K L K S S S S S E D V A S S N Q K E R N V N H T T S K I S MKK2 aa
255 R D - - K N G Q E G Y I P S N Y V T E - A - - - - hAtk (X58957)
212 Q D - - R N G H E G Y V P S S Y L V E K S - - - - - hTKT (L10717)
138 R D - - K - - - - - - - - - - - - - - - mTec (X5663)

277 W E F P E S S S S E E E E N L D D Y D W F A G N I S R S Q S MKK2 aa
273 - - - - - E D S I E M Y E W Y S K H M T R S O A hAtk (X58957)
231 - - - - - P N N L E T Y E W Y N K S I S R D K A hTKT (L10717)
141 - - - - - Y G W Y C R N T N R S K A mTec (X5663)

307 E Q L L R Q K G K E G A F M V R N S S Q V G M Y T V S L F S MKK2 aa
292 E Q L L K O E G K E G G F I V R D S S K A G K Y T V S V F A hAtk (X58957)
250 E K L L L D T G K E G A F M V R D S R T A G T Y T V S V F T hTKT (L10717)
154 E Q L L R T E D K E G G F M V R D S S Q P G L Y T V S L Y T mTec (X5663)

FIGURE 10A

337 K - A V N D K K G T V K H Y H V H - - T N A E N K L Y L A E MKK2 aa
 322 K S T - G D P Q G V I R H Y V V - - C S T P Q S Q Y Y L A E hAtk (X58957)
 280 K A V V S E N N P C I K H Y H I K E T N D N P K R Y Y V A E hTKT (L10717)
 184 K F G - G E G S S G F R H Y H I K E T A T S P K K Y Y L A E mTec (X5663)

364 N Y C F D S I P K L I H Y H Q H N S A G M I T R L R H P V S MKK2 aa
 349 K H L F S T I P E L I N Y H Q H N S A G L I S R L K Y P V S hAtk (X58957)
 310 K Y V F D S I P L L I N Y H Q H N G G L V T R L R Y P V C hTKT (L10717)
 213 K H A F G S I P E I I E Y H K H N A A G L V T R L R Y P V S mTec (X5663)

394 T K A N K V P D S V S L G N G I W E L K R E E I T L L K E L MKK2 aa
 379 Q Q N K N A P S T A G L G Y G S W E I D P K D L T F L K E L hAtk (X58957)
 340 F G R Q K A P V T A G L R Y G K W V I D P S E L T F V Q E I hTKT (L10717)
 243 T K G K N A P T T A G F S Y D K W E I N P S E L T F M R E L mTec (X5663)

424 G S G Q F G V V Q L G K W K G Q Y D V A V K M I K E G S M S MKK2 aa
 409 G T G Q F G V V K Y G K W R G Q Y D V A I K M I K E G S M S hAtk (X58957)
 370 G S G Q F G L V H L G Y W L N K D K V A I K T I R E G A M S hTKT (L10717)
 273 G S G L F G V V R L G K W R A O Y K V A I K A I R E G A M C mTec (X5663)

454 E D E F F Q E A Q T M M K L S H P K L V K F Y G V C S K E Y MKK2 aa
 439 E D E F I E E A K V M M N L S H E K L V Q L Y G V C T K Q R hAtk (X58957)
 400 E E D F I E E A E V M M K L S H P K L V Q L Y G V C L E Q A hTKT (L10717)
 303 E E D F I E E A K V M M K L T H P K L V Q L Y G V C T Q O K mTec (X5663)

484 P I Y I V T E Y I S N G C L L N Y L R S H G K G L E P S Q L MKK2 aa
 469 P I F I I T E Y M A N G C L L N Y L R E M R H R F Q T Q O L hAtk (X58957)
 430 P I C L V F E F M E H G C L S D Y L R T Q R G L F A A E T L hTKT (L10717)
 333 P I Y I V T E F M E R G C L L N F L R Q R Q G H F S R D M L mTec (X5663)

514 L E M C Y D V C E G M A F L E S H Q F I H R D L A A R N C L MKK2 aa
 499 L E M C K D V C E A M E Y L E S K O F L H R D L A A R N C L hAtk (X58957)
 460 L G M C L D V C E G M A Y L E E A C V I H R D L A A R N C L hTKT (L10717)
 363 L S M C Q D V C E G M E Y L E R N S F I H R D L A A R N C L mTec (X5663)

544 V D R D L C V K V S D F G M T R Y V L D D Q Y V S S V G T K MKK2 aa
 529 V N D Q G V V K V S D F G L S R Y V L D D E Y T S S V G S K hAtk (X58957)
 490 V G E N Q V I K V S D F G M T R F V L D D Q Y T S S T G T K hTKT (L10717)
 393 V N E A G V V K V S D F G M A R Y V L D D Q Y T S S S G A K mTec (X5663)

574 F P V K W S A P E V F H Y F K Y S S K S D V W A F G I L M W MKK2 aa
 559 F P V R W S P P E V L M Y S K F S S K S D I W A F G V L M W hAtk (X58957)
 520 F P V K W A S P E V F S F S R Y S S K S D V W S F G V L M W hTKT (L10717)
 423 F P V K W C P P E V F N Y S R F S S K S D V W S F G V L M W mTec (X5663)

604 E V F S L G K Q P Y D L Y D N S Q V V L K V S Q G H R L Y R MKK2 aa
 589 E I Y S L G K M P Y E R F T N S E T A E H I A O G L R L Y R hAtk (X58957)
 550 E V F S E G K I P Y E N R S N S E V V E D I S T G F R L Y K hTKT (L10717)
 453 E I F T E G R M P F E K N T N Y E V V T M V T R G H R L H R mTec (X5663)

634 P H L A S D T I Y Q I M Y S C W H E L P E K R P T F Q Q L L MKK2 aa
 619 P H L A S E K V Y T I M Y S C W H E K A D E R P T F K I L L hAtk (X58957)
 580 P R L A S T H V Y Q I M N H C W K E R P E D R P A F S R L L hTKT (L10717)
 483 P K L A T K Y L Y E V M L R C W Q E R P E G R P S F E D L L mTec (X5663)

664 S S I E P L R E K D K H MKK2 aa
 649 S N I L D V M D E E S hAtk (X58957)
 610 R Q L A E I A E S - - - G L hTKT (L10717)
 513 R T I D E L V E C E E T F G R mTec (X5663)

FIGURE 10B

1 MSNICQRLWE - - - - - MKK3 MPI aa
1 MGC VQCKDKKEA - T - - - KLT EER DGS LNQ - S hFyn
1 MGC VHC KKKIS - G - - - KGGGGSGTGTPTA - H cYrk
1 MGSNKS KPKDA - SQR - RRSLEPAENVHG - A hSrc
1 MGC IKS KENKS - PAI - KYRPE NTP EPVS - T hYes
1 MGC VFC KKL E P - VATA KEDAGLE GDFRSYG hFgr
1 MGC IKS KGL S L SDDGVDL - KTQPV R NTER hLyn
1 MGS MKSK - - - FLQVGGNTFSKTE T S A S PHC hHck
1 MGC GCS S - - - HPEDDWM EN IDVCEN CHY hLck
1 MGLLS SKRQVSEKKGWSPVK IRTQDKA PP mBlk

11 - - - - - YLEP MKK3 MPI aa
26 SGYRYGT DPT P QHYPSFGVTSIPN - - YNNF hFyn
26 PPSQYDPDPT - QLSGAF - - THIPD - - FNNF cYrk
28 GGGAFPASQT PSKP A S A D GHRGP S A A F A P A hSrc
28 SVSHYGAEP TTVSPCPS SAKGTAVNFSSSL hYes
30 AADHYGPDPT KARPA S - SFAHIPN - - YSNF hFgr
30 TIYVRDPTSNK QORPVPESQLLP GQR F QTK hLyn
28 PVYVPDPTST I K P G P N S HNSNT P G I R - - - hHck
26 PIVPLD GKG T L L I R N G S E V R D - P L V T Y E G S hLck
31 P L P P L V V F N H L A P P S P N Q - - - - - mBlk

15 YLPC LSTEADKSTVIENPGALCSPQSQRHG MKK3 MPI aa
54 HAA - - - GGQGLTV FGG V N - - SSSHTGTLRT hFyn
51 HAA - - - AVSPPVP F S G P G F Y P C N T L Q A H S S cYrk
58 AAEP - - - - - KLFGGFNSSDT V T S P Q R A G hSrc
58 SMT PFGGSSGVTP FGG A S S S F S V V P S S Y P A hYes
57 SSQA INPG - - - - - F - - - - - L D S G T I R G hFgr
60 DPEE - - - - - Q G - - - - - hLyn
54 EAGS - - - - - ED - - - - - hHck
55 NPPA - - - - - SPLQD - - - - - hLck
49 DPDE - - - - - EE - - - - - mBlk

45 H - - - - - YFVALFDYQARTAE DLSFRA G D K MKK3 MPI aa
79 RGGTGVTLFVALYDYEARTEDDLSFHKGEK hFyn
78 ITGGGVTLF I A L Y D Y E A R T E D D L S F Q K G E K cYrk
81 PLAGGVTT F V A L Y D Y E S R T E T D L S F K K G E R hSrc
88 GLTGGVTT F V A L Y D Y E A R T E D D L S F K K G E R hYes
74 VSGIGVTLF I A L Y D Y E A R T E D D L T F T K G E K hFgr
66 - - - - - DIVVALY P Y D G I H P D D L S F K K G E K hLyn
60 - - - - - IIVVALYDYE A I H H E D L S F Q K G D Q hHck
64 - - - - - N L V I A L H S Y E P S H D G D L G F E K G E Q hLck
55 - - - - - RFVVALFDYAAVNDRLQVLKGEK mBlk

69 LQVLDLTH EGWWFARHLEKRRDGS SQQ LQG MKK3 MPI aa
109 FOILNSSEG D W W E A R S L T T G E T G - - - - - hFyn
108 FHI I N N T E G D W W E A R S L S S G A T G - - - - - cYrk
111 LQIVNNTEGDWW L A H S L S T G Q T G - - - - - hSrc
118 FOI I N N T E G D W W E A R S I A T G K N G - - - - - hYes
104 FHI L N N T E G D W W E A R S L S S G K T G - - - - - hFgr
90 MKVL EEH - GEWWKAKSL LTKKEG - - - - - hLyn
84 MVVLEES - GEWWKARS LATRKEG - - - - - hHck
88 LRI LEQS - GEWWKAQSL T T G Q E G - - - - - hLck
79 LOVLRST - GDWWLARSLVTGREG - - - - - mBlk

FIGURE 11A

99 Y I P S N Y V A E D R S L Q A E P W F F G A I G R S D A E K MKK3 MPI aa
132 Y I P S N Y V A P V D S I Q A E E W Y F G K L G R K D A E R hFyn
131 Y I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R cYrk
134 Y I P S N Y V A P S D S I Q A E E W Y F G K I T R R E S E R hSrc
141 Y I P S N Y V A P A D S I Q A E E W Y F G K M G R K D A E R hYes
127 C I P S N Y V A P V D S I Q A E E W Y F G K I G R K D A E R hFgr
112 F I P S N Y V A K L N T L E T E E W F F K D I T R K D A E R hLyn
106 Y I P S N Y V A R V D S L E T E E W F F K G I S R K D A E R hHck
110 F I P F N F V A K A N S L E P E P W F F K N L S R K D A E R hLck
101 Y V P S N F V A P V E T L E V E K W F F R T I S R K D A E R mBlk

129 Q L L Y S E N K T G S F L I R E S E S Q K G E F S L S V L D MKK3 MPI aa
162 Q L L S F G N P R G T F L I R E S E T T K G A Y S L S I R D hFyn
161 Q L L C H G N C R G T F L I R E S E T T K G A Y S L S I R D cYrk
164 L L L N A E N P R G T F L V R E S E T T K G A Y C L S V S D hSrc
171 L L L N P G N Q R G I F L V R E S E T T K G A Y S L S I R D hYes
157 Q L L S P G N P Q G A F L I R E S E T T K G A Y S L S I R D hFgr
142 Q L L A P G N S A G A F L I R E S E T L K G S F S L S V R D hLyn
136 Q L L A P G N M L G S F M I R D S E T T K G S Y S L S V R D hHck
140 Q L L A P G N T H G S F L I R E S E S T A G S F S L S V R D hLck
131 Q L L A P M N K A G S F L I R E S E S N K G A F S L S V K D mBlk

159 - - - - - G A V V K H Y R I K R L D E G G F F L T R R R I F MKK3 MPI aa
192 W D D M K G D H V K H Y K I R K L D N G G Y Y I T T R A Q F hFyn
191 W D E A K G D H V K H Y K I R K L D S G G Y Y I T T R A Q F cYrk
194 F D N A K G L N V K H Y K I R K L D S G G F Y I T S R T Q F hSrc
201 W D E I R G D N V K H Y K I R K L D N G G Y Y I T T R A Q F hYes
187 W D Q T R G D H V K H Y K I R K L D M G G Y Y I T T R V Q F hFgr
172 F D P V H G D V I K H Y K I R S L D N G G Y Y I S P R I T F hLyn
166 Y D P R Q G D T V K H Y K I R T L D N G G F Y I S P R S T F hHck
170 F D Q N Q G E V V K H Y K I R N L D N G G F Y I S P R I T F hLck
161 I T T - Q G E V V K H Y K I R S L D N G G Y Y I S P R I T F mBlk

184 S T L N E F V S H Y T K T S D G L C V K L G K P C L K I Q V MKK3 MPI aa
222 E T L Q Q L V Q H Y S E R A A G L C C R L V V P C H K G M - hFyn
221 D T I Q Q L V Q H Y I E R A A G L C C R L A V P C P K G T - cYrk
224 N S L Q Q L V A Y Y S K H A D G L C H R L T T V C P T S K - hSrc
231 D T L Q K L V K H Y T E H A D G L C H K L T T V C P T V K - hYes
217 N S V Q E L V O H Y M E V N D G L C N L L I A P C T I M K - hFgr
202 P C I S D M I K H Y Q K Q A D G L C R R L E K A C I S P K - hLyn
196 S T L Q E L V D H Y K K G N D G L C O K L S V P C M S S K - hHck
200 P G L H E L V R H Y T N A S D G L C T R L S R P C Q T Q K - hLck
190 P T L O A L V O H Y S K K G D G L C O K L T L P C V N L A - mBlk

214 P A P F D L S Y K T V D Q W E I D R N S I Q L L K R L G S G MKK3 MPI aa
251 P R L T D L S V K T K D V W E I P R E S L Q L I K R L G N G hFyn
250 P K L A D L S V K T K D V W E I P R E S L Q L L Q K L G N G cYrk
253 P Q T Q G L A - - - K D A W E I P R E S L R L E V K L G Q G hSrc
260 P Q T Q G L A - - - K D A W E I P R E S L R L E V K L G Q G hYes
246 P Q T L G L A - - - K D A W E I S R S I T L E R R L G T G hFgr
231 P Q - - - - K P W D K D A W E I P R E S I K L V K R L G A G hLyn
225 P Q - - - - K P W E K D A W E I P R E S L K L E K K L G A G hHck
229 P Q - - - - K P W W E D E W E V P R E T L K L V E R L G A G hLck
219 P K - - - - N L W A Q D E W E I P R Q S L K L V R K L G S G mBlk

FIGURE 11B

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------|
| 394 | K | L | P | V | K | W | T | A | P | E | A | I | R | S | N | K | F | S | I | K | S | D | V | W | S | F | G | I | L | L | MKK3 MPI aa |
| 427 | K | F | P | I | K | W | T | A | P | E | A | A | L | Y | G | R | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hFyn |
| 426 | K | F | P | I | K | W | T | A | P | E | A | A | L | F | G | K | F | T | I | K | S | D | V | W | S | F | G | I | L | L | cYrk |
| 426 | K | F | P | I | K | W | T | A | P | E | A | A | L | Y | G | R | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hSrc |
| 433 | K | F | P | I | K | W | T | A | P | E | A | A | L | Y | G | R | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hYes |
| 419 | K | F | P | I | K | W | T | A | P | E | A | A | L | F | G | R | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hFgr |
| 404 | K | F | P | I | K | W | T | A | P | E | A | I | N | F | G | C | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hLyn |
| 397 | K | F | P | I | K | W | T | A | P | E | A | I | N | F | G | S | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hHck |
| 401 | K | F | P | I | K | W | T | A | P | E | A | I | N | Y | G | T | F | T | I | K | S | D | V | W | S | F | G | I | L | L | hLck |
| 390 | K | F | P | I | K | W | T | A | P | E | A | I | H | F | G | V | F | T | I | K | A | D | V | W | S | F | G | V | L | L | mBlk |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------|
| 424 | Y | E | I | I | T | Y | G | K | M | P | Y | S | G | M | T | G | A | Q | V | I | Q | M | L | A | Q | N | Y | R | L | P | MKK3 MPI aa |
| 457 | T | E | L | V | T | K | G | R | V | P | Y | P | G | M | N | N | R | E | V | L | E | Q | V | E | R | G | Y | R | M | P | hFyn |
| 456 | T | E | L | V | T | K | G | R | V | P | Y | P | G | M | N | N | R | E | V | L | E | Q | V | E | R | G | Y | R | M | Q | cYrk |
| 456 | T | E | L | T | T | K | G | R | V | P | Y | P | G | M | V | N | R | E | V | L | D | Q | V | E | R | G | Y | R | M | P | hSrc |
| 463 | T | E | L | V | T | K | G | R | V | P | Y | P | G | M | V | N | R | E | V | L | E | Q | V | E | R | G | Y | R | M | P | hYes |
| 449 | T | E | L | I | T | K | G | R | I | P | Y | P | G | M | N | K | R | E | V | L | E | Q | V | E | Q | G | Y | H | M | P | hFgr |
| 434 | Y | E | I | V | T | Y | G | K | I | P | Y | P | G | R | T | N | A | D | V | M | T | A | L | S | Q | G | Y | R | M | P | hLyn |
| 427 | M | E | I | V | T | Y | G | R | I | P | Y | P | G | M | S | N | P | E | V | I | R | A | L | E | R | G | Y | R | M | P | hHck |
| 431 | T | E | I | V | T | H | G | R | I | P | Y | P | G | M | T | N | P | E | V | I | Q | N | L | E | R | G | Y | R | M | V | hLck |
| 420 | M | V | I | V | T | Y | G | R | V | P | Y | P | G | M | S | N | P | E | V | I | R | S | L | E | H | G | Y | R | M | P | mBlk |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------|
| 454 | Q | P | S | N | C | P | Q | Q | F | Y | N | - | I | M | L | E | C | W | N | A | E | P | K | E | R | P | T | F | E | T | MKK3 MPI aa |
| 487 | C | P | Q | D | C | P | I | S | L | H | - | E | L | M | I | H | C | W | K | K | D | P | E | E | R | P | T | F | E | Y | hFyn |
| 486 | C | P | G | G | C | P | P | S | L | H | - | D | V | M | V | Q | C | W | K | R | E | P | E | E | R | P | T | F | E | Y | cYrk |
| 486 | C | P | P | E | C | P | E | S | L | H | - | D | L | M | C | Q | C | W | R | K | E | P | E | E | R | P | T | F | E | Y | hSrc |
| 493 | C | P | Q | G | C | P | E | S | L | H | - | E | L | M | N | L | C | W | K | K | D | P | D | E | R | P | T | F | E | Y | hYes |
| 479 | C | P | P | G | C | P | A | S | L | Y | - | E | A | M | E | Q | T | W | R | L | D | P | E | E | R | P | T | F | E | Y | hFgr |
| 464 | R | V | E | N | C | P | D | E | L | Y | - | D | I | M | K | M | C | W | K | E | K | A | E | E | R | P | T | F | D | Y | hLyn |
| 457 | R | P | E | N | C | P | E | E | L | Y | - | N | I | M | M | R | C | W | K | N | R | P | E | E | R | P | T | F | E | Y | hHck |
| 461 | R | P | D | N | C | P | E | E | L | Y | - | Q | L | M | R | L | C | W | K | E | R | P | E | D | R | P | T | F | D | Y | hLck |
| 450 | C | P | E | T | C | P | P | E | L | Y | N | D | I | I | T | E | C | W | R | G | R | P | E | E | R | P | T | F | E | F | mBlk |

| | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-----|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|-------------|------|
| 483 | L | R | W | K | L | E | D | Y | F | E | - | T | D | S | S | Y | S | D | A | N | N | F | I | R | MKK3 MPI aa | |
| 516 | L | Q | S | F | L | E | D | Y | F | T | A | T | E | P | Q | Y | Q | P | G | E | N | - | - | - | L | hFyn |
| 515 | L | Q | S | F | L | E | D | Y | F | T | A | T | E | P | Q | Y | Q | P | G | D | N | - | - | - | Q | cYrk |
| 515 | L | Q | A | F | L | E | D | Y | F | T | S | T | E | P | Q | Y | Q | P | G | E | N | - | - | - | L | hSrc |
| 522 | I | Q | S | F | L | E | D | Y | F | T | A | T | E | P | Q | Y | Q | P | G | E | N | - | - | - | L | hYes |
| 508 | L | Q | S | F | L | E | D | Y | F | T | S | A | E | P | Q | Y | Q | P | G | D | Q | - | - | - | T | hFgr |
| 493 | L | Q | S | V | L | D | D | F | Y | T | A | T | E | G | Q | Y | Q | Q | - | - | Q | - | - | - | P | hLyn |
| 486 | I | Q | S | V | L | D | D | F | Y | T | A | T | E | S | Q | Y | Q | Q | - | - | Q | - | - | - | P | hHck |
| 490 | L | R | S | V | L | E | D | F | F | T | A | T | E | G | Q | Y | Q | P | - | - | Q | - | - | - | P | hLck |
| 480 | L | Q | S | V | L | E | D | F | Y | T | A | T | E | G | Q | Y | E | L | - | - | Q | - | - | - | P | mBlk |

FIGURE 11D